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Heart Failure and Cardiomyopathies

CHARACTERISTICS AND SPECIFIC ECG FINDINGS IN 200 PATIENTS WITH STRESS-INDUCED "TAKOTSUBO" CARDIOMYOPATHY COMPARISON BETWEEN TYPICAL AND ATYPICAL FORMS

Poster Contributions
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Background: ECG findings of "Takotsubo" cardiomyopathy (TTC) have been described in few previous studies, however with limited sample size. Therefore, the aim of the present study was to investigate ECG characteristics in a large TTC patient population and to compare these findings between patients with typical and atypical forms.

Methods: Admission 12-lead surface ECGs from 200 patients (91% females) with the diagnosis of TTC from the International Takotsubo Registry were reviewed. ECGs from patients with apical ballooning were compared to ECGs with atypical forms (midventricular, basal and focal types).

Results: ECG on admission showed normal pattern in 28 (14%), ST-elevation (STe) in 111 (56%), isolated T-wave inversion (Tinv) (with no concomitant STe or ST-depression STd) in 43 (22%), isolated STd (with no concomitant STe or Tinv) in only 8 (4%) and QT prolongation in 102 (51%) patients. The presence of total, anterior or antero-septal STe, or inferior Tinv were more observed in typical TTC (62% vs 34% p=0.001, 28% vs 4% p<0.001, 42% vs 19% p=0.005 and 20% vs 2% p=0.002, respectively). We also identified a higher prevalence of STd in aVR lead [STe in (-)aVR] in typical TTC (35% vs 17%, p=0.019). Atypical TTC patients had more normal ECG pattern on admission (28% vs 10%, p=0.004). Isolated STd was significantly more observed in atypical forms (10.6% vs 2%, p=0.019). In fact, STe in anterior and inferior, STe in (-)aVR along with STe in anterior, or diffuse Tinv in anterior and inferior leads had 100% specificity for typical versus atypical TTC on admission ECG (p value of 0.07, 0.003 and 0.014 respectively). On the other hand, a normal ECG at presentation is 90% specific for atypical TTC (p=0.004) while STd without concomitant STe or Tinv in any leads is 98% specific of the atypical form of Takotsubo (p=0.019).

Conclusion: The presence of STe in (-) aVR, anterior and inferior STe or T-wave inversion, in opposite to normal ECG or isolated STd, can differentiate typical from atypical TTC types. The difference in left ventricular dysfunction between typical (apical) and atypical (especially midventricular) ballooning types of Takotsubo was reflected in the difference in ECG changes between the two groups.